

DISTANCE LEARNING STUDENTS' NEED: Evaluating Interactions from Moore's Theory of Transactional Distance

Rusmanizah USTATI
Language Department
IPGM Kampus Pendidikan Teknik, Bandar Enstek,
MALAYSIA

Sharifah Sariah Syed HASSAN
Institute of Education
International Islamic University Malaysia
MALAYSIA

ABSTRACT

This study draws on the experience from a focus group interviews under the distance learning programme known as *Program Pensiswazahan Guru* (PPG) organized by the Malaysian Ministry of Education in collaboration with local universities and institutes of education. Its purpose is to uncover students' perception about the platform used by International Islamic University Malaysia (IIUM) which is the Learning Management System (LMS). LMS is a vital instructional medium especially for the varsity distant learners. Michael Moore's *Theory of Transactional Distance* is used as the guiding framework to gain insights on learning and interactions in this e-learning setting. Teacher-student interactions are analyzed for better understanding of the phenomena under study.

The findings indicate that in terms of usability LMS is perceived as a good platform to acquire information on content and to receive feedback from instructors. However, IIUM learners hope for more interactivity where learners can communicate amongst themselves beside engaging with the instructor-learner- content interactions that they currently experience via the system. This study aspires to provide insights on the significance of interactions from distance learners' perception.

Keywords: Distance learning, theory of transactional distance, student-teacher interaction, e-learning

INTRODUCTION

Distance learning has become one of the major trends in education, especially in the 21st century. It has opened the opportunity for learners from all walks of life to continue with their academic pursue. Distance learning refers mainly to a mode of delivery where independent learning takes place at a distance through the means of self-study texts and non-contiguous communication (Sampson, 2003, p. 104).

Teaching and learning in a distance education centres upon the use the technological media as its medium of instructions.

The teacher in a distance education setting should be able to utilize the technology to deliver content and to ensure that students' understanding of the curriculum content. Materials production in a distance learning education should be self-explanatory, thought provoking and able to scaffold students' understanding throughout their learning experience. Therefore separation of the teacher and learner should not temper the two-way exchange of communication in meeting the needs of both parties in delivering and receiving content.

Teacher's competency in addressing the students' needs in a distance learning setting is crucial in ensuring the success of a distance education. Researches in distance learning education (e.g. Fox, 2003; Rosenberg, 2001; Sampson, 2003; Shearer, 2010; Starr-Glass, 2012) indicates that teachers play an important role in addressing the students' needs to ensure education success in virtual learning environments. Fox (2003) asserts, "the key [in effective learning] is analyzing the performance need, content and target audience ... When investing in training, you want to maximize the chances of learners to improve their performance" (p. 41). Fox (2003) also addresses the needs for an effective instructional framework to ensure effective learning. He has put forth the five components of 'good learning', i.e. to be able to 'solve real world problems', to 'activate prior knowledge as a pre-cursor to undertaking new learning', to 'take on board new knowledge through demonstration and worked examples', to 'try out new learning by applying it' and to 'integrate learning into the learner's own world of experience' (pp. 18-19). The suggestions outlined indicates that the teacher or the instructor in a distance learning environment need to be able to design their instructions so as to enable the learners to understand, practise and relate these understanding to their real life experiences.

Quality teacher and independent self-motivated students are two major components in a distant education system. Students who embark in the distance learning education are usually aware of the demands of online or distance learning education in terms of motivation, self-discipline and time-management. The result of a survey study on the experience of 22 multinational and multilingual students in a distance learning programme administered by a British university indicates that "the students felt down by the course" because their needs in terms of "competent student support services, access to reference materials, and efficient administrative procedures" (Sampson, 2003, pp. 114-115) are not fully attended to. This study shows that students in a virtual learning environment are quite frustrated when the online supports originally designated to assist them in their studies are incompetent or unreliable. In reviewing this issue, there is a need to revisit the question as to what should be focused upon in an e-learning environment. Rosenberg (2001) delineates the three keys to success in an e-learning environment, i.e. 'access to information' 'comprehensive approach that's reliable, accurate, complete, organized and labeled for easy retrieval and use' and 'a complementary balance between training and information' (pp. 14-15). Accessibility of information for easy retrieval and use are considered as of major importance to the distance learning students. Throughout the course, students should be trained and taught on how to utilize the online information provided. Thus, this calls for the teacher's role in preparing good learning materials or learning objects for the students. Besides, online support and assistance should be made available so that students could fully utilize this support system throughout their online learning experience.

The success of a distance learning programme is determined by the way in which the programme is structured so as to provide maximum benefits to the learners.

It should be noted that "those designing, and managing online environments cannot rely on the skills and competencies gained in traditional engagements; instead they must be prepared to come to terms with new issues presented in their virtual environments" (Starr-Glass, 2012, Introduction section, para. 1). In discussing the distant learning education system, Michael Moore's Theory of Transactional Distance has identified three major components, which are the dimension of structure, dialogue and learner autonomy, in a distance learning education.

Moore (1972; 1973), considering distant learning systems, identified three elements critical in impacting transactional engagement: the structure of the environment, the degree of meaningful communication ("dialogue") that the structure permits, and the degree to which the learner is able to mediate choices and decisions regarding personal learning goals and trajectories ("learner autonomy"). (as cited in Starr-Glass, 2012, Literature Review section, para. 3) Moore's Theory of Transactional Distance is able to capture the three major components of a distance learning education. Factors like how the programme is structured in the e-learning environment, the teacher-student-content interactions involved, and the students' autonomy in an e-learning environment are crucial to better understand and to ascertain the success of a distance learning programme. Thus, in ensuring an effective distance learning education, administrators and instructors should consider these three determining factors that could maximize the output of the programme designed.

AIMS OF THE STUDY

The intention of this qualitative paper is to investigate the extent to which IIUM Learning Management System, after which known as LMS, is able to address the needs of its distance learners, i.e. students of the *Program Pensiwazahan Guru*, after which known as *PPG* students. Michael Moore's theory of transactional distance is used as the guiding framework in order to gain insights on the learning experience of these PPG students and their interactions with their instructors, other learners and the contents of their studies. Specifically, this study was to explore the students' perceptions on the use of LMS in addressing their needs as distance learners in the varsity. The investigation of this study was guided by three research questions:

- What are the learning experiences of IIUM distance learner students?
- What are the learning needs of distance learners?
- Is the IIUM Learning Management System able to fulfill the distance learners' needs?

THEORETICAL FRAMEWORK

Theory of transactional distance is used as the guiding framework to better understand the phenomena under study. Moore's (1993) theory of transactional distance focuses on "the universe of teacher-learner relationships that exist when learners and instructor are separated by space an/or time" (p.22). Generally, this theory describes the interrelationship between three variables namely dialogue, structure and learner autonomy, and how the interactions of these variables will affect the intensity and the quality of transactional distance. Moore's theory "has both psychological dimension of distance, in terms of connectedness, and one that describes the efficiency of interactions in reducing miscommunications around dialogue and learning experience" (Shearer, 2010, p. 1).

Interactions of learners, instructors, content and the medium of instructions are among the key features that define distance education. The interplay of these elements will determine the value of a distance learner experience throughout his/her academic programme.

Moore's anatomy of theory of transactional distance is built upon the need for dialogue, structure and learner autonomy. Dialogue is defined as "purposeful, constructive [communication] and valued by each party. Each party in a dialogue is respectful and active listener; each is a contributor, and builds on the contributions of the other party or parties. There can be negative or neutral interactions; the term 'dialogue' is reserved for positive interactions, with value placed on the synergistic nature of the relationship of the parties involved" (Moore, 1993, p. 24).

Dialogue is the interaction involved in a distance learning community. The interactions can occur between the teacher and learner, amongst learners in the learning community and the interaction with the content. Moore's theories look into the constructive communication where both parties involved get the benefit from the transactions. In order for this materialize, both parties should be aware of their roles in the dialogue transactions.

The second component in this theory is the physical element of a distance education programme, i.e. the 'structure'. It is the system via which information is transmitted, and learning takes place. Structure is a medium "...to which the objectives, implementation procedures, and evaluation procedures of a teaching program are prepared, or can be adapted, to meet specific objectives, implementation plans, and evaluation methods of individual students. Structure is a measure of the educational program's responsiveness to the learner's individual needs." (Moore, 1980, p. 21)

Distance learning education administrators and instructors need to be aware of the means and strategies that could enable them to address the needs of distance learners through the content management system and the learning management system that they have prepared for the programme. It should be able to provide for the educational, social and emotional needs of learners in a distance learning education environment.

Another important component in a distance learning education is the 'learner autonomy'. Autonomy is "the extent to which in the learning-teaching relationship, it is the learner rather than the teacher who determines the goals, the learning procedures and resources, and the evaluation decisions of the learning programme." (Moore, 1984, p. 85).

The students in a distance learning environment should be given the opportunity to decide on the strategies of learning that suit them. The awareness of the need for preparing learning materials that could address different learning styles of the students will enable the instructors to build upon the students' knowledge and to scaffold the students learning process throughout the students' learning experience during the course of their studies.

The Figure 1.0 below indicates the extent to which the structure and the dialogue in a distance learning programme could affect transactional distance and improve on the learners' autonomy.

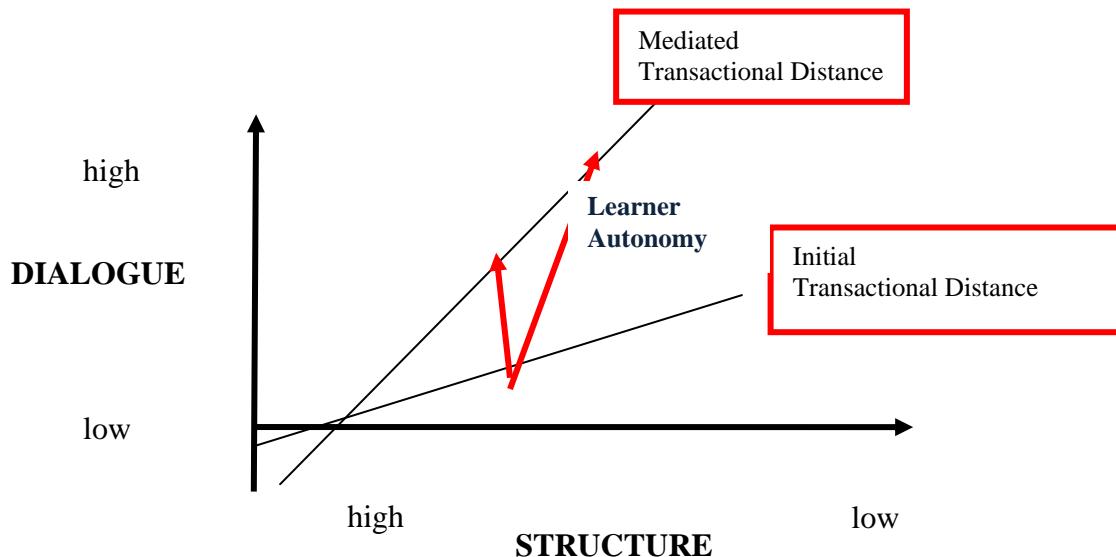


Figure: 1

Diagram depicts the interplay of elements of Moore's theory of transactional distance. As structure is reduced, dialogue increases. Learners make autonomous decisions to reduce perceived transactional distance by reducing structure and/or increasing dialogue. (Taken from Starr-Glass, 2012, Literature Review Section, para. 6)

Moore highlights the fact that "the construction of knowledge, and deeper experiential understanding, is not restricted to the individual; rather it inhabits a wider social context mediated by presence, mutuality, and reciprocity" (Starr-Glass, 2012, Literature Review Section, para. 1). The essence of the theory of transactional distance is in the importance of interactions in a distance learning communication. It encapsulates the importance of the medium in which interactions take place, the quality of interactions and programme's support and responsiveness to learners' individual needs. One of the mediums in which learning process takes place is through interactions. For a distance learning programmed, a learner interaction can be perceived in three domains: instructor-learner interaction, learner-learner interaction and learner-content interaction. During these processes, a learner may acquire and learn new academic experiences by being exposed to, understanding, synthesizing, analysing and applying the information that they receive with the knowledge they already have.

This understanding of how learners learn from others and from their surroundings can be related to the learning theory of social constructivism. Vygotskian view of social constructivism is underpinned on three premises; social interaction and culture have impact on cognitive development, cognitive processes develop through social interaction and learning is largely mediated through the social interactions with other peers or more knowledgeable others. Social interactions can be impetus to cognitive development where learners interact and build their own representations of knowledge through mental processing. Constructivists believe that learners are able to construct knowledge based on their own perceptions and past experiences.

"Vygostky considered social environment to be critical for learning and thought that social interactions transformed learning experiences" (Schunk, D. H. 2009, p. 243). This social interactions will assist learners in developing their mental functions and optimizing their learning. Interactions can be concluded as having its own importance in the teaching and learning process. Varsity students have the opportunity to communicate with their instructors to get feedback during classroom interactions or during tutorials. They also have the opportunity to have face to face discussions amongst their classmates or tutorial group members about topics that they have learnt, issues that interest them or problems they face during the course of their studies. However, for IIUM distance learners, face to face interaction with their instructors/ lecturers or their class members will only take place once a month. At other times, these learners have to utilize the online platform equipped by their learning institutions to communicate with one another. For the IIUM students, particularly the distance learners, Learning Management System, or LMS, is the online medium used for instructional as well as social communication purposes by the students. The framework of this study indicates the significance of structure and learner autonomy in a distance learning setting.

METHODOLOGY

This qualitative study uses two informants to gather insights into the phenomenon. Two students were interviewed by the researcher on two different occasions between 30 to 45 minutes. Both interviews were recorded with the permission of the interviewees. To care for the validity and the reliability of the transcription, one copy of the transcription is given to each of the informants for verification. The informants in this study are two *Program Pensiswazahan Guru* (PPG) students in their second semester of the study. Both informants, Sofia and Khaled (pseudonyms) have used the IIUM Learning Management System throughout the course of the PPG programme. Having their face to face interactions with their lecturers once a month, PPG students depend highly on the LMS as their medium of learning and interactions with their instructors and lecturers. As the sole method for gathering information, the semi-structured interviews were examined carefully to better understand the phenomenon under study. After the interviews, the recordings were transcribed and emerging patterns were identified. These patterns were categorized into themes and sub themes. Both the interview transcripts were read by two other researchers and coded in the style of grounded theory approach to data analysis. Three themes were generated from the data namely 'interactions', 'assistance' and 'self-regulated learning'. The analysis of the themes is read and discussed using the framework of Moore's theory of transactional distance.

FINDINGS AND DISCUSSIONS

Three themes emerged from the data analysis in accordance to the research questions as shown in the Figure 2.0 below.

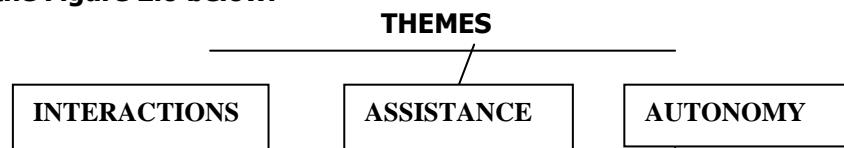


Figure: 2

The findings of this study indicate that

- **distance learners need a two-way communication with their instructors and their peers,**
- **there should be online assistance in terms of technical and academic support and**
- **learners should be given the autonomy to decide on their learning experience. The following discussion is based on the elaboration of the findings.**

THE NEED FOR A TWO-WAY COMMUNICATION

Both Sofia and Khaled were aware of the student-teacher interactions that happened in a distance learning education. They frequently referred to the need for two-ways interactions during the interview sessions.

Sofia said "*I learn the subject course from the lecturers... participate with the lecturers online.. Not only through books but also technology.*" She addressed the fact that the LMS enables her to learn not only by reading the books, but also by interacting with the lecturers online.

She further asserted the fact that "*the lecturers will go through the answers through the forum, or through the quiz, and check our grammar..all those things are important to evaluate us as English teachers...quiz are always there.. it concerns marks.*" Sofia found this important because the lecturers had given her needed feedback during her learning process. This indicates that the learner values instructors who "create a learning environment that is sufficiently organized, structured, and flexibility to promote inquiry" (Starr-Glass, 2012, Limitations and Methodological Considerations section, para 8).

Khaled discussed the same notion of student-teacher interaction. He indicated that, "*it is easy to get notes from our lecturers, even information regarding our studies...but to certain extent it does not.. because sometimes it is not interactive for us to communicate with our colleagues and lecturers.*" Khaled highlighted the fact that the interaction that takes place is an asynchronous interaction. There is a delayed feedback in the communication process. Thus, sometimes he hopes for an immediate feedback in his interactions with his lecturers.

Both informants view teacher-student interactions differently. Sofea values the fact that LMS could offer feedback to her questions because the lecturers could upload learning materials and content, respond to forum questions, and provide marks to online quizzes. On the other hand, Khaled prefers a two-way interaction where there is immediate feedback from the lecturers during the communication process.

Thus, although LMS allows for the student-teacher interactions to take place, there is also a need to look into the learner needs for a synchronous interaction rather than asynchronous interaction that are available via LMS currently. For an effective dialogue in an online learning environment to take place, "each party in a dialogue is respectful and active listener; each is a contributor, and builds on the contributions of the other party or parties" (Moore, 1993, p. 24).

To cater to the different learning styles of the distance learners, IIUM LMS administrators need to consider the learners' need for an immediate feedback during the online communication process because "by manipulating communications media, it is possible to increase dialogue between learners and their teachers, and thus reduce the transactional distance" (Moore, 1993, p.25). This could result in effective online transactions between the two parties, the teachers and the students.

Besides the issue of delayed feedback in the teacher-student interactions, both informants agree on the fact that there is an absence of student-student interactions via the LMS. The PPG students want a platform which enables them to be in contact with other learners, not only within the course they are taking, but also with students from other programmes. According to Sofia, she "*prefer[s] LMS like 'what's app'... you can chat with several people*" because she wants "*to create a friendly relationship on which profit [her] not only in UIA but also out there.*" Sofia hopes that LMS could enable her to engage in an online discussion with her classmates and also students from other courses. She views this as being important in her academic pursue because she hopes to learn from other students as well, besides from the instructors and the lecturers where she hopes for a "*system that connect with the junior – with the full time students*". Sofia further reiterates, "*LMS-connecting with people outside, will make me learn the way they learn in the UIA.*" Khaled voices the same opinion about having an interactive discussions with other students. He argues that "*maybe we can have something like the facebook, whenever a student is inside, then the student's name will appear in the section, so we can know who is inside the system, so we can contact them.*" Khaled and Sofia highlight the fact that the learners' needs for a platform for social interactions amongst students. This indicates that effective learning environments should be able to promote and stimulate significant dialogue about content. They should also create opportunities for broader social interactions among the members of the learning community. IIUM Learning Management System should be able to address the need for social interactions of its distance learning students.

TECHNICAL AND ACADEMIC ASSISTANCE

A distance learning student does not share the opportunity of having face-to-face classroom interactions with the instructors or the lecturers' everyday like other varsity students. The learning management system is the means by which they could have interactions with the lecturers other than the once a month classroom interactions. Thus, immediate online supports in terms of academic and technical assistance are the crucial needs of distance learners.

In terms of academic assistance, Sofia is satisfied with the online academic support by the lecturers via LMS. She feels that "*It is like you are there with her alone, learning... it is satisfying.*" She appreciates the fact that despite being distant from the lecturers, she gets the one to one attention from the lecturers in answering to her academic enquiries via the LMS. She believes that during classroom interactions, this is quite impossible because there are many students in the class. Sofia also feels that when the lecturers are online, they are at their best in attending to the students' academic needs. According to Sofia, "*when you are there online... your lecturer is at easy puff and mood, right...relaxed at the other side, so she or he is open to answer all your questions.*" Sofia sees this as a valuable academic assistance provided by the instructors/lecturers. Khaled gives the same opinions about academic assistance given by the lecturer.

He said “*staff updating our system regularly, lecturers are giving the tasks, the notes, and the information regarding our..our learning, on a..weekly basis, so ..we can..we have.. we can create a schedule and where we can enter the LMS and check our..on our task to be completed.*” Both informants are satisfied with the academic support provided via the LMS.

However, there are issues of accessibility and interface design raised by the Sofia and Khaled. Sofia explained that there are times when the system did not work and that had caused inconvenience to learners who live far from campus. She explained how she once could not submit her assignment online and she had to come all the way from Pahang “*because the LMS was down.. and the due date was two days back..*” She also said that “*the lecturers who taught me... they always use [LMS] 160%.. They have the same problem with us, that is the management of the system.. They have downloaded the documents but we didn't receive in our site.*” Besides that, Khaled points out that whenever he has technical problems with the LMS, such as not being able to download content, he will call the technical support to resolve the problems. Khaled also stressed on the issue of LMS interface design which is quite unfriendly to the learners, he says that “*during my first time I going into the LMS I find it a bit difficult since the icons are not clearly stated, so I do not where to go, so I had to explore it around one to three days and but once I get a use of it ...everything seems easy.*”

This indicates that IIUM LMS administrators may need to look into these issues of accessibility and interface design of the system so that students will at ease in using the system. “One way to counterbalance the absence of dialogue in distance learning is to institute sufficient student support services” (Sampson, 2003, 105). Since the nature of distance learning is it lacks face-to-face interactions, to ensure that teaching and learning can be optimized, the support system needs to be able to address all aspects of students’ needs, including the technical support of the system.

LEARNER AUTONOMY

Autonomy is the ability to decide and to take charge. “Learner autonomy is the extent to which in the teaching/learning relationship, it is the learner rather than the teacher who determines the goals, the learning experiences and the evaluation decisions of the learning programme” (Moore, 1993, p. 31). It is an ideal situation where students can decide on the content, the experience and the evaluation criteria of their studies. However, under the constraints where the curriculum content is the decided by the higher education authorities, students can be autonomous in terms of how they want to approach the way they want to study and experience the course they are taking. Sofia says that she aspires for a platform where all the students are required to participate online and marks will be rewarded for active participation via the learning management system. She said that LMS “*could be improvised by inviting all the TESL4 students inside the account of LMS and then make sure every participation taken will be given marks for their effort.*” This is because she wants to have “*open discussion to help one another*” and to “*receive lots of feedback from ...friends.*” Khaled put forth the same idea by saying that “*having an interactive section in the LMS would be very much.. celebrated by me because I need to regularly contact my group members and the lecturers ... to clarify on a few things.. regarding my task may be I lack in understanding..*” He also explains that “*we can't seem to get together in the system..let's say for the forum.. once you answered one forum, it is hard to get others to reply or to partake in what you are saying.*”

Both informants wish that there could be more interactive with other learners. Sofia also highlights the need for having access to videos that can act as source of academic information to her learning experience. She says that "You tube, videos that are relevant, seminars, paper works, courses we can attend." The informant's ideas echoed Michael Moore emphasis on the need for interactive media in a distance learning education to enhance learning. "The most important evolution in distance education has been the development of highly interactive telecommunications media...their use had added the possibility of faster dialogue with the teacher, and by computer conferencing, more individual dialogue" (Moore, 1993, p. 32). Thus, the IIUM LMS needs to examine its platform in terms of interactivity to the learners. The learning management system allows documents but not videos to be accessed by learners, thus it has reduced the interactivity factor of the system. Besides, LMS environment also does not permit the students to interact amongst themselves for academic or social purposes. As indicated by the two informants that learners hope for being able to have discussions forums via LMS, the system does not allow this to materialize.

CONCLUSION AND RECOMMENDATIONS

The themes generated from the study are in tandem with Moore's Theory of Transactional Distance. The need for a two-way interaction can categorized under Moore's 'dialogue', and the need for technical and academic assistance is related to Moore's 'structure' and the need for learner autonomy is in line with Moore's third variable, 'autonomy.' Figure 3.0 below shows the interconnection of the ideas.

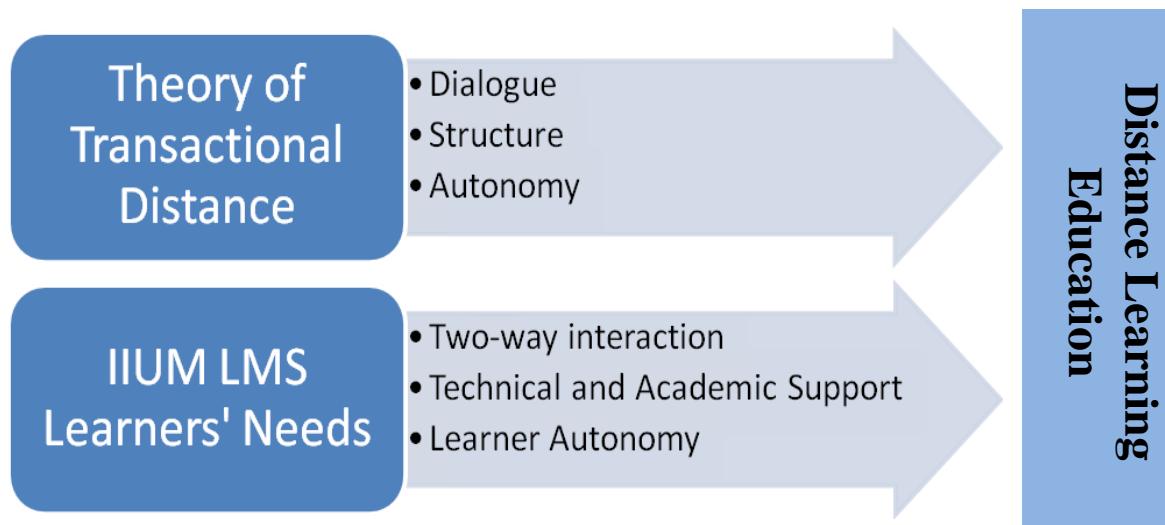


Figure: 3

The informants in this study have highlighted important factors that need to be considered by the IIUM Learning Management System administrators. There is an urgent need for a synchronous interactions between the learner and instructor and learner and learner via the IIUM Learning Management Systems. From the students' perspective, a synchronous interactions will enable them to receive immediate feedback that could enhance their learning processes.

This also may be due to the fact that distance learners are students who are not full time students. Thus, within the time that they have allocated time for their own studies, they hope to be able to receive important information, feedback and materials that they could work upon immediately. An asynchronous interaction that is available via IIUM LMS is important provided the system also allows for an immediate feedback two-way communication.

The learner's needs of students under distance education system are very much interrelated with the skills they need to acquire and utilize throughout their studies, i.e. metacognition, self-regulation, time-management. Distance learners should be able to acquire metacognitive skills that could enable them to know what works and what does not work for them in applying their learning strategies. They should also be able to self-regulate themselves and to manage their time effectively throughout their learning duration under the programme.

To promote learners who are able to work on their own, who are self-regulatory, the IIUM LMS should give the autonomy to the learners to enhance their learning skills through the active participation in the system. "To deliver teaching programme that are maximally effective in overcoming transactional distance it is necessary to select appropriate medium to provide each teaching process, with appropriateness being dependent in part on other variables in the transactional environment, such as learner characteristics and content characteristics." (Moore, 1993, p. 30)

IIUM LMS should also give the opportunity for the students to widen their academic circle within the institution and outside the learning institution. Another attempt to enhance the LMS is by providing students with the opportunity to create their own online learning community to support their studies is one of the steps that could be taken by IIUM LMS administrators. Besides, the system takes the step to provide the medium to complement the information the students receive with interactive videos. Documents and visual aid could complement one another in transmitting information to the distance learners.

In conclusion, IIUM learning management system should aspire to address the learners' needs so that distance learning students' experiences could be optimized and their learning process via the LMS could be maximized.

On top of that, IIUM administrators should also try to devise ways and strategies to ensure that vision of the varsity to incorporate the elements of integration, islamization, internalization and comprehensive excellence in the distance learning environment is a success.

BIODATA and CONTACT ADDRESSES of AUTHORS



Rusmanizah USTATI is a PhD student majoring in Social Foundations of Education at International Islamic University Malaysia. She has a Masters degree in Human Sciences (English Literary Studies) and a Bachelor's degree in Teaching of English as a Second Language (TESL). She is interested in distance learning, initial teacher education and related fields to education. She has been teaching in school for 12 years and teacher training college for 3 years.

Rusmanizah USTATI
Language Department
Institute of Teacher Education (Technical Education Campus)
Kompleks Pendidikan
71760 Bandar Enstek
Negeri Sembilan, MALAYSIA

Dr. Sharifah Sariah Syed HASSAN is a lecturer at Institute of Education, International Islamic University Malaysia. She possesses a BSC in Genetics (Hons) from University Malaya and a Diploma from Education International Islamic University Malaysia. She also holds a Masters degree in Education from University Malaya, 2000. Her research interest is.

REFERENCES

Giossos, Y. Mauroidis, H. and Koutsouba, M. (2008). Research in distance education: review and perspectives. *Open Education – The Journal for Open and Distance Education and Educational Technology*. 4 (1). Retrieved December 8, 2012, from http://www.opennet.gr/index.php?option=com_content&task=view&id=Itemid=28

Fox, M. (2003). *Learning design and e-learning*. Brighton: Epic Group plc. Retrieved December 8, 2012, from www.dokeos.com/doc/thirdparty/Epic_Whtp_learningdesign.pdf

McIsaac, M.S. and Gunawardena, C.N. (1996). Distance Education. in D.H. Jonassen, ed. *Handbook of research for educational communications and technology: a project of the Association for Educational Communications and Technology*. (pp. 403-407). New York: Simon & Schuster Macmillan.

Moore, M. G. (1972). Learner autonomy: The second dimension of independent learning. *Convergence*, 5(2), 76-88.

Moore, M. G. (1973). Towards a theory of independent learning and teaching. *Journal of Higher Education*, 44(9), 661-679.

Moore, M. G. (1980). Independent study. In R. D. Boyd, Apps, J. W., & Associates (Eds). *Redefining the discipline of adult education*. (Vol. 5, pp.16-31). San Francisco: Jossey-Bass.

Moore, M. G. (1984). On a theory of independent study. In D. Stewart, D. Keegan & B. Holemburg (Eds.) *Distance education: International perspectives* (pp. 68-94). London: Routledge.

Moore, M. G. (1993). Theory of transactional distance. In D. Keegan (Ed.) *Theoretical principles of distance education* (Vol. 1, pp. 22-38). London: Routledge.

Moore, J. L. (2011). "E-learning, online learning, and distance learning." Retrieved December 8, 2012, from <https://scholar.vt.edu/access/.../eLearning%Scott%Midkiff.pdf>

Ravenscroft, A. (2001). Designing E-learning Interactions in the 21st Century: revisiting and rethinking the role of theory. *European Journal of Education*, 36 (2). 133-156.

Rosenberg, M. J. (2001). *E-learning : Strategies for Delivering Knowledge in the Digital Age*. New York: McGraw-Hill Professional.

Starr-Glass, D. (2012). *Learners' Perception of Distance in an online course: Revisiting Moore's Theory of Transactional Distance*. Retrieved December 8, 2012, from www.umuc.edu/ctl/upload/Starr-Glass_paper.pdf

Schunk, D. H. (2009). *Learning Theories: An Educational Perspective*. (5th ed.). New Jersey: Pearson Education International.